

## BITS & PIECES

### ZENITH FIRST TO SHIP EISA COMPUTER

Editor's note: The announcement of Zenith to be the first to ship their EISA computer came as a surprise to all of us. The dealers and Zenith sales reps knew absolutely nothing about this. It was almost an overnight thing. We all expected it to be available toward the summer time. Although Compaq made the most noise about EISA, Zenith was the first to bring the product to market. A 80486 was expected but it would have delayed the EISA to the market. I guess they compromised with a 33Mhz 80386 so EISA would get out there and start gaining some ground. With its reasonable prices (for a change) and its fast 32-bit disk cache controller, it's a very fast machine and gives lots of bangs for the bucks. According to Zenith, these systems should be available in late February. Below is information about the system from ZDS NEWS RELEASES.

**EISA**, Extended Industry Standard Architecture -- "building on strength!" Zenith Data Systems' dedication to innovation, performance, and industry standards has paid off with the Z-386/33E. The system is based on the powerful Intel 33MHz 80386 microprocessor and features the ultimate in I/O throughput with Zenith data Systems' EISA Mass Storage Controller.

Zenith Data Systems' Z-386/33E pushes the envelope of technology by increasing overall system throughput by as much as 200% with its 32-bit direct memory access, 32-bit addresses, and data transfer capabilities. The flexibility of the Z-386/33E will more than meet a user's demand for networking and file servers while executing sophisticated applications.

#### SYSTEM ARCHITECTURE

**Overview:** The Z-386/33E is Zenith Data Systems' first EISA product introduction. EISA, which stands for the Extended Industry Standard Architecture, is a 32-bit extension to the industry standard expansion bus. It is compatible with the thousands of boards on the market designed for the Industry Standard Architecture (ISA) prevalent today. This evolutionary approach allows for a smooth transition to new 32-bit peripheral devices as demonstrated by Zenith Data Systems' new 32-bit Mass Storage Controller.

The Z-386/33E is based on Intel's 33MHz 80386 processor and ZDS's new EISA Mass Storage Controller; this high end personal computer is designed to meet the demands of today's disk intensive application environments.

The Z-386/33E challenges all competing 386 AT, MCA, and EISA systems in performance by continued enhancements in the hard disk subsystem.

A design component of the EISA specification is the definition of bus arbitration. By arbitrating the usage of the bus, all components are given an equal opportunity to utilize the bus and the amount of time they can maintain control.

Automatic system configuration is another EISA feature providing significant benefits for the end user. This feature will save users time by not having to set and reset system and expansion board jumpers and dip switches.

**EISA Mass Storage Controller:** Zenith Data Systems and Data Technology Corporation invested two years in the development of the 32-bit Mass Storage Controller. This innovation is so important to the computing industry that ZDS has filed for five separate patents on its design.

The Mass Storage Controller features a 15Mbit per second transfer rate which provides a 50% increase in the communication cycle between the disk controller and the hard disk drives. This reduces the disk I/O time and allows for the use of larger and faster ESDI hard drives.

The EISA mass storage controller has several features which allow the Z-386/33E to access information faster than ever before.

This mass storage controller is a 32-bit EISA compatible card which supports up to 13 storage devices: two floppy disk drives (either 3.5" or 5.25"), four ESDI hard disk drive devices, and seven SCSI devices.

The 1M byte of hardware cache stores frequently used data, therefore, reducing the amount of time spent accessing hard drives. This effectively reduces the average access time allowing for higher sustained transfer rates to the EISA bus.

The multi-tasking mode allows operating systems to queue commands to multiple hard drives. Therefore, in multiple hard drive environments it improves subsystem performance.

The SCSI port provides a way of accessing up to seven secondary storage devices (i.e., tape backup device, WORM, CD ROM).

1:1 interleaving reduces the amount of time the hard disk needs to spin to reach a required sector of information. This results in improved system performance by speeding up information access.

**Bus Arbitration:** A key design factor in the EISA specification was the definition of the bus arbitration scheme. Bus arbitration determines when bus masters, the CPU, refresh, and DMA channels get control of the bus and for how long each maintains control. In the EISA scheme, arbitration is granted on a fair, rotational basis. In the design of the EISA bus arbitrator, a significant effort was made to insure ISA compatibility.

**Automatic System Configuration:** In the past, the only way to configure a system was through expansion board jumpers and settings. Automatic System Configuration puts an end to that problem - making it another EISA benefit.

A device configuration file (CFG), software configuration utility, and slot specific addressing are critical components of the configuration process. Expansion and system board configuration information is provided in a configuration file provided with EISA or ISA boards. The CFG file for an ISA board will display the proper switch and jumper settings. The user must then manually make the system configuration changes. The EISA CFG file contains all the necessary information to automatically configure the EISA expansion board; **no manual** setting changes are necessary. The CFG file has defined sections for product ID, jumper, DMA, interrupt, and memory selection settings.

EISA expansion boards that utilize the slot specific ranges may be plugged into any system slot and be assured of not having I/O address conflicts with other EISA boards. At "power-up," BIOS

routines initialize the EISA system by verifying configuration data in non-volatile memory and initializing and enabling system devices. The power-up routine verifies the information in non-volatile memory is correct by comparing the product ID, slot information, and adapter information to the actual hardware installed. The BIOS power-up routine then initializes and enables the system board, expansion boards, embedded devices, and virtual devices.

**Memory Subsystem:** 4M byte of system memory is standard on the Z-386/33E. Memory can be expanded to 8M byte using 1M byte Single In-Line Memory Modules (SIMMs), (Model ZA-3800-ME), without using a RAM expansion board. A 4M byte SIMM (Model ZA-3800-MK) is also available to upgrade memory; this is especially important to the user who requires additional open slots for peripheral cards.

**System Memory Cache:** With a clock speed of 33MHz, conventional memory can be a bottleneck in performance. In order to maintain effective zero wait state performance, a 16K memory cache using ultra-fast 15 nanosecond RAM is standard. The cache memory is found on a separate plug-in card set in its own dedicated connector. It is modular and allows for future upgrades as applications grow.

The cache memory is supported by Zenith Data Systems' own enhanced cache controller allowing the Z-386/33E to support increased amounts of cache memory. The controller features a 16 layer write queue. Zenith Data Systems designed the 16 layer write queue to improve system performance on writes. When writes occur, the ZDS queue can store the writes and actually perform the write operation during idle memory subsystem time. This technique is known as posted writes. Most competing systems can only post one 32-bit write, while the Z-386/33E can post 16.

The key benefit to this operation is that the Z-386/33E can hold up to 16 times the data of competing systems before being forced to update system memory, creating a more efficient environment and lessening the amount of wait states required to write to system memory.

**32-bit Input/Output Controller:** Zenith Data Systems first introduced the 32-bit input/output card with the 16MHz Z-386. Today the new 32-bit I/O card supports two serial ports, one parallel port, and a real time clock/calendar. The LED diagnostic lights which help provide quick diagnosis of problems with the computer's key sub-assemblies is also supported by this controller.

**Fast 16-bit VGA Video Card:** The new high performance 16-bit VGA card is standard in the Z-386/33E. This VGA card is one of the fastest video cards on the market today and is hardware compatible with the VGA video standard.

Video performance is enhanced with Zenith Data Systems' "Slushware" technique whereby slow 8-bit video ROM is copied into fast 32-bit RAM at system boot-up.

**Power Supply:** The Z-386/33E incorporates a 115/230V switch-mode power supply which provides 200 watts of power to the system. This large power supply provides ample power for the addition of third party peripheral cards and drives.

#### MODELS AVAILABLE

**Z-386/33E Model 150:** 3.5" floppy disk drive, 4M byte memory, EISA Mass Storage Controller, 150M byte 16ms ESDI hard drive, 16K byte cache with 16 level write queue, four open EISA slots, VGA video card, two serial ports and one parallel port, MS-DOS 3.3 PLUS, and MS-WINDOWS/386. List price is \$11,999.

**Z-386/33E Model 320:** 3.5" floppy disk drive, 4M byte memory, EISA Mass Storage Controller, 320M byte 16ms ESDI hard drive,

16K byte cache with 16 level write queue, four open EISA slots, VGA video card, two serial ports and one parallel port, MS-DOS 3.3 PLUS, and MS-WINDOWS/386. List price is \$13,799.

#### SPEED

Many tests were conducted on this system versus others and the speed of this machine is very impressive. Perhaps it has something to do with Zenith's choice to use a dedicated microprocessor for administrating the cache. Another dedicated microprocessor developed by DTC interfaces with the ESDI hard drive. They work concurrently so data can be retrieved from the cache by one CPU and passed along to the system while data is being read from the hard drive by the other CPU. For instance, if the system requests a 15-sector read and 12 of them are already in the cache, the first 12 are transferred to the system at the same time the remaining three are retrieved. The resulting performance level is the same as having all 15 sectors in the cache. In addition, the Bus Master Interface Chip (BMIC) allows 32-bit transfers providing information to the EISA bus as speeds never before achieved in a microcomputer. And this is all done without help from the CPU freeing the CPU to proceed with other tasks, making the system more efficient. There are also other reasons for the high speed, but I will not go into these here.

Speed tests were conducted by Infonetics and I'll print some results. On Novell with 24 and 36 users, the Zenith EISA was more than twice as fast as the IBM Model 70-A21 in all tests. While the IBM is only a 25 Mhz system, this only accounts for about 30% of the Z-386/33E advantage.

In DOS tests with a standard 386/33 and Exel spreadsheets and CAD programs, the EISA performance index was over 12 times larger than the other machines. With UNIX SCO UNIX ver 3.2 with 13 active users, the Zenith was almost twice as fast as the ISA-based machines. Running OS/2 using AIM benching software with random disk reads and writes compared to the IBM 70-A21, and a Compaq Deskpro 386/33, the Zenith clearly outperformed both systems by a wide margin.

Fact is, this system outperforms the more expensive i486-based file servers.

#### ZENITH/BULL SALE FINALIZED

NEW YORK, Dec. 28, 1989 -- Zenith Electronics Corporation has completed the sale of its computer business to Group Bull.

At the closing, Zenith received \$496.4 million in cash, representing 90 percent of the estimated purchase price based on the adjusted net book value of the computer business as of the end of November.

The net book value as of the end of November was about \$55 million lower than at the end of September, primarily because of reductions in inventories and receivables. The final purchase price will be based on the adjusted net book value of the computer business as of Dec. 28.

[and remember those famous Zenith auctions and liquidations? Remember having the dealers wanting for product while it was being liquidated and auctioned off? Very interesting! -ed]

Zenith is using proceeds from the sale to repay short-term obligations and a portion of its long-term debt. At closing and before repayment of debt, the company's total interest bearing obligations were about \$560 million.

Following approval at a special meeting of Zenith stockholders this morning in Glenview, IL, representatives of Zenith and Groupe Bull met in New York and signed the final closing documents, completing the transaction.



The final vote tally showed that 17.4 million shares of Zenith common stock, representing more than 96 percent of the shares voted (more than 65 percent of the shares outstanding), were cast in favor of the proposed sale.

Zenith Electronics Corporation, based in Glenview, IL, is the only U.S.-owned integrated color television manufacturer and has been a leader in consumer electronics for more than seven decades.

With the sale of its computer business, Zenith is now a \$1.5-billion firm in consumer electronics (color TVs, VCRs, camcorders, picture tubes, color monitors and cable products) and electronic components (power supplies, monochrome displays and monitors, and automotive electronics).

[OK, now let's see what's going to happen next - that, I believe, will determine the fate of former ZDS, now ZDS/BULL. The natives are restless indeed. The old Heath supporters are giving a last chance. The loyal Zenith customers are wondering. To be continued! -ed]

And from a letter dated December 28, 1989 from President of ZDS John Frank, **TO ALL ZENITH DATA SYSTEMS CUSTOMERS:**

It's official! We're now part of the Groupe Bull family.

Earlier today, the stockholders of Zenith Electronics Corporation agreed to allow Groupe Bull to acquire the Zenith Computer Group, including Zenith Data Systems.

Groupe Bull is one of the world's leading suppliers of information systems and - with us - a \$7 billion global company that's dedicated to the computer business. We value this focus, as well as the company's long history and tradition of quality.

The acquisition makes great sense. In the worldwide microcomputer market, we too are a top-tier player. As a result, we will serve as Bull's primary organization for desktop and portable computers.

Our rapid growth in recent years has created new sets of challenges and opportunities for us as we head into the 1990s. With the resources of Bull behind us, we are confident that we will be better positioned to excel in the coming decade.

And together, we will be more competitive, due to our complementary skills and operations. In mid-January, Bull Chairman and CEO Francis Lorentz will discuss how our combined strengths will help serve you. We, in turn, will pass that information on to you.

When the acquisition was announced in October, we pledged that we would strive for a smooth transition with no major changes. That's exactly how it's been.

[editors note: They must not know about the ROM return policy, the high-priced service manuals, the bad service from PARTS department, etc.]

And that's exactly how we expect the transition to continue. Our existing management team will remain in place, with our headquarters in Mt. Prospect, IL, primary engineering and production in St. Joseph, MI, and a superior sales, service and support network around the world.

In other words, Bull values us for our expertise, our excellence in microcomputer R&D, manufacturing, sales and marketing. As a result, we are moving forward with our 1990 programs, and we already are working with Bull to assure that we advance together. Again, we will keep you informed as our strategy coalesces. [I wish them all the luck - cooperation is the name of the game. I heard Zenith is expecting some bucks from Bull to help further them along.]

## ZENITH PROTESTS DOD DEAL

Zenith Data Systems has protested the largest federal micro contract contracts for the Department of Defense. ZDS claimed multiple violations of procurement procedures.

Zenith charges that Unisys was using foreign components. Unisys was charged with using a Malaysian made coprocessor for their bid even though an American source was available. It was ironic, but it was ZDS that was predicted to have problems with the contracts since the company has been purchased by Groupe Bull of Paris, France.

ZDS said the Air Force overruled its own criteria by selecting Unisys on a price-first basis, instead of on technical merit.

Later, ZDS agreed to drop its protest of Unisys' multimillion dollar award, saying their concern has been settled.

In a move Zenith said was unrelated [Hmmm, - ed], the company will be a subcontractor to Unisys on parts of Desktop 3. "We're disappointed we lost to a competitor, but the real winner is the government, which got more information and assurances," a ZDS spokesman said. [Hmmm. Very interesting!]

## MSDOS 3.3 PROBLEM HELP

People having any problems with Zenith MS-DOS 3.3+ may wish to download any of the following files that may be pertinent to their problem from the Heath/ Zenith Software Consultation BBS at (616) 982-3503.

**EMM.SYS** Version 3.03.15 - Expanded Memory Management driver for ZENITH EMS HARDWARE ONLY. Conforms with L/I/M EMS Version 4.0. Some people have reported problems with the new version 5.1 of WordPerfect not working properly using expanded memory. Word Perfect 5.1 apparently makes maximum use of the LIM 4.0 specification and many EMM drivers (not just Zenith) identify themselves as LIM 4.0 drivers but do not fully meet the specification. This new driver MAY solve the problem for Zenith users who are using Zenith MS-DOS 3.3+ and Zenith memory boards. Since I am using QEMM (which doesn't have a problem) I have not tested this.

**VDISK.SYS** Version 3.03.02 - Compatible with EMM.SYS driver above. Replaces version 1.16 if using a Z-171.

**ZCACHE.SYS** Version 3.03.05 - Compatible with EMM.SYS driver above.

**RESTORE.COM** Version 3.30.07 - Versions prior to version 3.11 can cause a verify error. RESTORE version 3.21 fails if backup date is 01/mm/yy or dd/01/yy. RESTORE version 3.03.06 fails if backup date is dd/10/yy.

**BACKUP.COM** Version 3.30.08 - Version 3.30.06 fails if backup date is dd/10/yy. Version 3.30.07 can fail formatting low density 3.5" disks.

**CONFIGUR.COM** Ver 3.30.07 - Correctly saves configuration for COMn: with 10 pad characters selected. For use with MS-DOS 3.3+ ONLY.

This was sent in to us by Don M. Deck/ P.O. Box 1240/ Lone Pine, CA 93545. He adds: I have gotten involved in QEMM and DesqView on a friend's Northgate 386/20. I have concluded the QEMM by itself is useful on any 386 machine to make better use of the memory. It is, however, somewhat difficult to figure out the best setup - which varies from machine to machine, video card to video card, etc. You may have heard they are coming out with a new version and a companion program called Manifest which should help figure it all out. I will be getting this and will try to write up my findings later in the year - NO PROMISES.

## GW BASIC BUGS

Carl Lovett writes: Somehow, no matter how hard software companies try, their documentation is never complete.

Recently, I devoted a number of hours to two GW Basic instructions trying to understand why, after following the directions in the documentation, they still failed to execute as advertised. Perhaps there are others out there in H-SCOOP land who are similarly puzzled and do not have the hours necessary to devote to a solution. Perhaps the following will save them some time:

I have an H386 running DOS 3.3 and Microsoft's GWBASIC 3.2.

One of the instructions I had a problem with was the BLOAD filename[,offset] command. The documentation says that BLOAD, and its related instruction BSAVE, are most useful for loading and saving machine language programs, but are not restricted to them. I use BSAVE to save screens before table information pops into a screen window. When the window has served its purpose, the original screen pops back almost instantaneously with the BLOAD instruction.

Normally, this works quite well. Once in a great while, the program would bomb and display, "File Already Open in ...", citing the line number containing the BLOAD instruction. An intermittent bomb is tough to ferret out. At first, I did not understand why it should display the "File already Open" error since file opening commands were never included in the instruction. According to the GW Basic documentation, the instruction line DEFSEG=&HB800: BLOAD"FILENAME",0" was all that was required to block load the screen. Yet, it did occasionally produce the "File Already Open" error.

It finally dawned on me that BWBASIC.EXE had to be opening and closing a file whenever the BLOAD instruction was executed. And to open a file it needed a channel. I already had set up BWBasic with six channels and all were not open at the same time. Running the program with some, all or none of the channels open, still produced the occasional "File Already Open" error.

At length, I was able to pin point under what conditions the error occurred. If at some point in the program a LPRINT instruction was issued before the BLOAD instruction, the error occurred. Probably, a professional would have already realized that the LPRINT instruction, like the BLOAD instruction, occupied a channel without actually referring to it in the GW Basic statement. The problem now was which channel were BLOAD and LPRINT both trying to use? As near as I could tell, it was Channel 1.

The solution was to specify the channel for the printer with the GW Basic instruction OPEN "LPT1:" FOR OUTPUT AS #6. This has cured the problem.

My second mystery was the GW Basic x=SCREEN(row,col,[z]) function. This is a very useful function for reading input directly from the screen (What you see is what you get). Reading characters from the screen presented no problem. SCREEN(row,col,0) returns the ascii value at the specified location. If z is nonzero, the color attribute of the character is returned instead of its ascii value. If you don't know what a color attribute is, the GW Basic documentation directs you to, "see the COLOR statement."

The COLOR [foreground],[background] statement discusses the use of foreground and background values to produce various color and blinking combinations. Thus, the description of the COLOR statement in the GW Basic documentation leads you to believe that the SCREEN function with z set at nonzero would return foreground and background values for the color at the specified location on the screen. Wrong!

Only one apparently meaningless value is returned. After more hours of experimentation, I managed to conclude that the color attribute was a single ascii value between 0 and 255 which represented both the foreground and background values—at least for an EGA card. For example: The color attribute 64 returned by the SCREEN function with z set at nonzero means a red (4) background with a black (0) character. Stated another way: the COLOR 0,4:LOCATE 12,40: x=SCREEN(12,40,1) statement sets x equal to the COLOR attribute 64.

Color attribute values between 128 and 255 indicate the character is blinking, i.e., 192 returned by the above statement means the character is blinking. Carl E. Lovett/ 3107 Craiglawn Rd./ Calverton, MD 20705.

## THE GOOD, BAD AND UGLY

The following is a letter written to Mr. John Frank, ZDS President by Charles E. Loeb, Jr.

This letter is written to make you aware of a series of inexcusable events regarding the repair of a Zenith 286LP computer, to compliment one of your employees for action above and beyond what could even unreasonably be expected, and to ask you to take specific action in two areas.

I have used Heath-Zenith computer equipment exclusively for the past ten years. As such, it was an easy decision as to which computer to buy for my daughter who started George Washington University this fall. This decision was made easier by the contract between ZDS and GWU which allows students to purchase computers at extremely reasonable prices. Suzy's computer was ordered and delivered in June, set up in New Orleans, and brought to Washington in August.

In mid-October, the computer suffered a hard disk crash. Through the assistance of the GWU Computer Center, it was determined that the computer should be brought to your authorized service center in Arlington, VA, American Computer Repair. There the real problems began.

Leslie, the assistant manager at American Computer Repair, at first refused to accept the machine without a copy of the original invoice. She would not hold it pending receipt. This caused a second trip to their facility. Then they said they needed the keyboard and monitor. My daughter was not told this on her first visit, so nothing was accomplished until the third visit. I sent a copy of the purchase papers, but they did not show the serial number of the computer. During all of this time, Suzy had a receipt for her computer but not a work order number for its repair. She only got the work order number after calling three times, leaving messages, and not having the calls returned. Even then Leslie was supposedly reluctant to give Suzy the work order number.

Colleen M. Spellacy, your Educational Account Representative, got into the act at this point. Suzy was directed to her by the GWU Computer Center. On November 3, Colleen advised American Computer Repair in writing of the serial number of the computer, and the date of purchase. Leslie had previously refused to touch the computer without this information in writing.

Suzy returned to New Orleans for the Christmas Holidays in mid-December. The day before she left American Computer Repair told her that the replacement hard disk had been received, but that they could not install it without a copy of the purchase documents showing date of purchase and serial number. At this time Leslie told Suzy that she needed the serial number and purchase date again. When asked why, Leslie admitted that she did not need the information again, but that she had misplaced all the paperwork on the repair. Colleen got back into the act again.



It is now almost three months since the computer failed. To my knowledge it is not fixed yet, and Suzy has been without the use of her computer, not by her choice, for almost one-quarter of the warranty period. She has called numerous times to learn the status of the repair, all to no avail. Apparently the problems at American Computer Repair are not limited to Leslie. Another assistant manager, Frank Hameed was uncaring and disinterested the one time Suzy spoke with him. There was no attempt to reach her even when the part arrived. No doubt, you will agree that this is unacceptable.

I spoke with Colleen for the first time on January 4. She offered to take Suzy to pick up the computer on January 15, when she returns to school. While she no doubt wants to make sure that the computer is repaired, and is properly operational, in doing so she is going far beyond what I would reasonably expect her to do. Both Suzy and I appreciate what Colleen has done, and continues to do in what she says is part of her job. I commend her for her actions, and hope you will join me in saluting your exceptional employee. You may also wish to talk with her about her discussions with American Computer Repair. I understand at least one of the conversations was quite heated.

Under the circumstances, I would also ask that you extend the warranty on this computer by the three months that it has been out of service. I realize that this is an unusual request, and would not ask if the repair had proceeded smoothly in a reasonable time period. Colleen told Suzy that she could not extend the warranty, but she felt that it may be appropriate to do so.

I would also ask that you terminate any service agreement you may have with American Computer Repair. Zenith customers deserve, and are accustomed to better. Here again, Colleen has had personal dealings with them, and has reported to Suzy that she saw no reason for their actions. You have a good asset in Colleen. Please take advantage of it.

Hopefully the computer problems will be solved on January 15. The assistance which Colleen Spellacy has rendered will be remembered long after that, as will the experience with American Computer Repair.

[Editors note: I would like to hear more stories like this, both the good and the bad. I have heard of so many bad service centers I can't believe it. On the other hand, I have heard reports of some really good ones. Quikdata receives computers from all over the world to service. Many of these computer owners have H/Z stores or Zenith centers in their driving areas, but have been so frustrated by them that they end up sending their systems to us for maintenance and repair. These stories are not new to me, but it may be interesting to print some. It will serve to alert unfortunate customers to stay away from certain places (perhaps hastening their shutdown, which they probably deserve), while helping those who really do bend over backwards and try - a rare commodity in this age! Send them all in, and we'll print them.]

### MISCELLANEOUS BITS

\* "Thank you for some help you gave me on the phone about a month ago concerning **terminating resistors** on Tandon 101-4 drives. I had terminating resistors on two drives instead of just one, and the system gave continual BDOS errors. It works fine now." David E. Young.

\* Dan Jerome sends in the following information on a **modem transfer program and HDOS 3.0**: Bill Lindley sent me a new program for check out and review. It is called "**PC89LINK**." It needs a null modem cable that goes **from the H89 modem port to the IBM computer's serial port**. You make a new system disk for HDOS 3.02 and put PC89LINK.ABS on it. Then you move to the IBM and make a new directory and install the PC89LINK.EXE on it. Then you fire up both computers, call PC89LINK for both of them, and you can transfer any kind of ASCII or BINARY program

back and forth. The program automatically edits the files so that the "foreign" computer can read the files. The program has facilities for changing any of the defaults, and it works very fast. I think it is one of the slickest programs that I have seen for a good while.

\* Dan has also typed in the **text for the HDOS 3.02 manual**. HDOS 3 with all the documentation is expected to be released in a few months. Dan writes: The HDOS 3.02 manual has the following chapters:

CHAPTER	TITLE
=====	=====
1	E System Configuration
2	E General Operations
3	E System Optimization
4	D Syscmd/Plus
5	D Pip/Plus
6	E HDOS Cookbook
7	E Advanced Techniques
8	E Theory of Operation
9	D Debug
10	D ED Line Editor
11	D ASM - Assembly Language
12	D Benton Harbor BASIC
13	E Programmers' Guide
14	E Data Bits

Lastly, Dan adds, In response to a letter of mine, Kirk Thompson, Editor of The Staunch 8/89'er writes: My apologies for the delay in replying to you about handling the upcoming release of HDOS 3.02. Things are slowly coming together and, as I remarked in my letter of late November, the **first** draft of the manual by Dan Jerome is now complete. But one of the things I wanted to check on before getting back to you was whether Bill Lindley is still willing to prepare camera-ready copy of the monster the manual has grown into.

\* Compilation and linking of 100 source files written in Ada that took all night (about 7 hours) with my H151 using a V20 processor at 4.77 MHZ now takes about one hour and fifteen minutes with the **SOTA386si accelerator board**. (The V20 is perhaps 5% faster than the 8088 when clocked at the same rate.) This is more than half the throughput of my VaxStation 3100 at work. Since compilations (even by Ada compilers) are I/O bound this is an amazing performance gain. It can only be attributed to the disk cache that the SOTA uses. (I allocated only 12K bytes for the disk cache. Perhaps with a larger cache the performance can be increased even more.) Bruce Bennett/ 27052 N. 71st Pl./ Cave Creek, ZA 85331

\* For those who have a version of GW-BASIC and/or Microsoft QuickBASIC... and an interest in learning this language from basics on up... I'd quickly recommend a **subscription to CodeWorks, a publication devoted entirely to BASIC**. Contact: CodeWorks/ 3838 S. Warner St/ Tacoma, WA 98409/ (206) 475-2219 and tell them H-SCOOP sent you! John R. Miller/ Anderson, SC

\* For those who would like to save money, **instead of buying new printer ribbons, collect your used ones**. Then, when you have several, send them out to have new ribbon (not re-inked) installed in the existing cartridges. Even with postage the savings are substantial. Contact: Dura-Line, Inc./ P.O. Box 369/ Naples, NC 28760-0369/ (704) 687-3690 and tell them you saw it in H-SCOOP! John R. Miller/ Anderson, SC

\* **Zenith has stuck us again! They have discontinued the Z-515 4MB RAM board for the Z386/16**, and all without a word of warning. Since in general third party boards do not work in that system, you may be in trouble if you want more RAM for your Z386/16. We had about ten boards here and they all sold in about a month. I was wondering why they were selling so fast. Since we

stockpiled them (quite by accident, but that's another story in itself) I guess we were about the only ones who still had some. I did not even know they were discontinued until I placed an order for more and was then told the news.

\* Another set of ROMs come back from a customer who upgraded his system. He writes "Please find enclosed my **incredibly valuable old, really old**, ROM's from my Z-150 in exchange for the new -18's you sent me last month. The customer, Dr. John Sindorf even went as far as to call me with concern that they arrived. He was worried they might get into the wrong hands, like the russians or something and we might have had a national disaster on our hands! Thank God they arrived safely!

\* For those of you who may have missed it, **Quikdata is now carrying the Z159 EMS upgrade** with one bank of 256K RAM for \$79. This was an amazing breakthrough. Zenith used to sell this for about \$200. Then they discontinued it and jacked up the price to about \$350, so we made our own!

\* I understand that **Seagate has purchased CDC**. Seagate did not have any high capacity ESDI drive line, and did not want to start from scratch, so they simply purchased another company that had such a line.

\* **SCSI drives and controllers** were supposed to be hot items, but they never really took off. One of the problems was that SCSI was supposed to be a defined standard, but every manufacturer had their own way of doing things. Thus SCSI devices which were supposed to be able to be connected to any SCSI controller in any system usually would not work. Now Adaptec has come up with a set of SCSI interface standards which if followed may solve the SCSI problems in the future.

\* **DASM is a disassembler that automatically converts DOS programs from their EXE, COM or BIN forms into assembly language code.** Works on 8088, 8086 and 80286 processors. It accepts binary files and creates assembly language that can be modified with an editor and then reassembled using an assembler such as Microsoft's Macro Assembler and other compatible DOS assemblers. Can disassemble programs as large as 200K. JB Software/ 701 Cathedral St., Suite 81/ Baltimore, MD 21201/ (301) 752-1348

\* I asked Dan Jerome if he would be interested in contracting for going over all the **past H-SCOOP issues for the years where we did not create an index and then input the information for the index**. He agreed that when he got caught up he would look at it and begin working on it. I believe it's three years worth. The index was always an excellent reference to have at your fingertips so you could find anything from the past year quickly. We've all missed the index, especially myself. I often need to be able to find info quickly. Even though I write the newsletter and collect all the info for it, I don't often remember exactly where something is. I just remember that in some issue ... Thus hopefully in awhile we will have this available for those who are interested.

## REQUESTS

\* "Neither I nor Fifth Generation System's technical support personnel have been able to get Fastback Plus version 2.09 to run on my Heath HS-151. The problem appears to be the Wildfire 8 MHz speedup kit. Even booting from a bare DOS (3.3+) diskette and running at 5 MHz, Fastback Plus fails the Low Speed DMA test and the Backup/Restore Confidence test -- two tests critical to reliable backups. I have a late Monitor ROM (3.0B), and have experienced no other problems of any type.

Has anyone else out there had the same problem and, hopefully, solved it? If not, be forewarned." Robert Hawkins/ P.O. Box 4533/ Greenville, MS 38704-4533/ (601) 332-4191.

\* I'm running MS.DOS V3.10. When I try to format a disk in the HD drive, it formats to 360 kb instead of 1.2 mb. However, if I place a disk in the HD drive that has been formatted as 1.2 mb in another machine, then my Mini/Micro FDC controller card reads from and writes to the 1.2 mb disk as it should. If you have any ideas regarding how to get the format program to recognize the HD drive type, please drop me a line. Bruce Bennett/ 27052 N. 71st Pl./ Cave Creek, AZ 85331 (Phone: 602-585-9668 eves./602-869-2190 days)

\* Scottie Gound/ Rt. 4, Box 388/ Canyon Lake, TX 78133 has a Z-DOS disk with Wordstar on it. He says he cannot open the files on the disk. "Unfortunately this disk has some files I need and which I do not have backed up. Is there a way to retrieve this data or is there a service somewhere that can retrieve these files?" I'm not certain from his letter if he cannot access any files on the disk, or if he simply cannot open some particular WordStar data files. Since I know nothing about Wordstar, perhaps somebody can help him, and/or perhaps he can send in more particulars.

\* Dave Hobbie is looking for a set of schematics for the H89A, specifically the CPU board. If anybody can help, contact Mike on the Quikdata bulletin board or contact Henry Fale at Quikdata.

\* John Krezoski is looking for a spare Z150 CPU card that works. Leave a message to him on the Quikdata bulletin board, or contact Henry Fale at Quikdata.

## CLASSIFIEDS

Classified ads can be placed in this section free of charge by any H-SCOOP subscriber. Non-subscriber's ads are placed at \$10 per insertion in advance. Ads to appear more than once must be submitted separately each month publication is desired - maximum 2 months with 2 month wait. When placing ads, try to keep in mind the 'devaluation' of computers and components and adjust your price accordingly.

**FOR SALE--Z100 All-In-One**, 192 K, two 360 K disk drives, old motherboard. \$250. Herbert J. Harlton/ 16653 Calendonia Rd./ Caledonia, IL 61011-9530/ (815) 765-2700.

**WANTED--Magnolia Microsystems 128K RAM expansion board** and software to operate it as a RAM drive. David E. Young/ 402 Houghton St/ Ontonagon, MI 49953/ (906) 884-2961

**FOR SALE--H-89 A** with 64K, Green Screen, 3 port serial card, internal drive. Unit comes with cover, all manuals and a spare CPU board. Software includes CP/M, HDOS, two word processors, FORTRAN, COBOL, Mbasic, CBasic, Small C, spread sheet and numerous other programs. \$125.00. Dual 8" thinline Tandon drives in a "QuickData" case with power supply and cables. Can be hooked to a Z-100 with no modifications. Use on H-89 with appropriate controller card and software. Mint condition! \$150.00. Magnolia Microsystems 128K RAM card for the H-89 with CP/M 3.0. Can be used with either the Magnolia disk controller or the Heath soft sectro controller. \$50.00. Zenith Z-319 card for the 150/160 series computers. Runs Z-100 graphics and software on an IBM compatible system. Includes DOS 2.0, Programmers Utility Pack 2.0 and a spare board. \$100.00. Older used software also available for Z-100 and Z-100PC's at LOW prices. Contact Mike Stover at (314)831-8174 (St. Louis, MO).

## QBBS

This column which will be printed from time to time will contain messages from our Quikdata Bulletin Board System, a TBBS system, which were left from readers and customers. When some



important information is on the board and perhaps relevant answers appear, we will print them in this section.

Msg#: 1005 \*BULLETIN BOARD\*  
01-07-90 22:42:21 (Read 8 Times)  
From: JOHN TURLEY  
To: ALL  
Subj: WORDSTAR CP/M

I saw mention from Henry in last H-SCOOP #118 about WS for H8/H89. Be aware that Micropro does not provide the Heath/Zenith disk formats anymore for CP/M. I did however purchase the version for the KAYPRO and used EMULATE to convert the provided (6 ss/dd) distribution disks. The H89/H19 terminal is listed as choice using WINSTALL.com. It is version 4.0 (I have had ver 3.0 for 7 years) and is super. The address for Micropro International Corp is 33 San Pablo Avenue; San Rafael, California 94903. Phone number 1-800-227-5609.

[I printed about Micropro having Wordstar in last month's H-SCOOP, but I did not have an address - here it is]

Msg#: 986 \*MSG TO SYSOP\*  
12-29-89 18:12:22 (Read 2 Times)  
From: RONALD PANNATONI  
To: SYSOP (Rcvd)  
Subj: SOTA 386SI  
Henry:

I am keeping the SOTA 386si board, and I want to prepare a report for H-SCOOP about it. There are a few important points that I want to give you in advance.

First, the board appears to be incompatible with memory expansion using bank-switching. I had to remove Dave Brockman's MegaRAM-150 in order to stop getting "memory parity check" errors when using a RAMdisk. (This happened even when I had the cache memory on the 386si disabled.) Messages on the SOTA BBS indicate that dozens of users cannot use any LIM 4.0 memory with their boards. The SOTA technical manager, Stanley Hughes, told me the Everex EMS board can't be used with the 386si. Computers won't boot when the boards are installed at the same time. Memory/16i, SOTA's memory expansion board for the 386si, is not available and probably won't be available until late in the spring. Users on the SOTA BBS say the Memory/16i board for the 286si is very expensive, \$800 list price, \$600 at some west coast dealers.

Second, the nominal speed increase with the board is a little better than 5 on average. A speed increase of 12 can be obtained for integer arithmetic in a Z151 without an 8087, but this numeric co-processor would give twice as much speed at a quarter of the cost of the 386si board for this purpose alone. I got an 80387SX from MicroWay to use with the 386si. This company provides programs to test the numeric co-processor, and one of them gives detailed speed information for a variety of operations. I can report this data as well as the results of a FORTRAN "Whetstone" test that I ran before and after installation of the 386si board.

I would like to include a line figure with the report because the picture in the SOTA manual showing how to install the 386si in a Z151 is wrong. The ribbon placement in the picture is impossible. I worked out a way to fold the ribbon that keeps it close to the CPU board, as SOTA recommends, but keeps it clear of the 80387SX on the 386si board. The 80387SX runs VERY hot and needs room for ventilation.

I am happy to say that the computer boots fine in the 80386 mode. There is no need for switch toggling on my Z151. (I must note that one user on the SOTA BBS reports difficulty booting on a Z158, however.) There have been no problems with my Hercules RAMFont board, either.

I got the 386si mainly as a way to get the benefit of the 80387 NPU for my Z151, but it meant losing the use of a big RAM disk. This tradeoff was worthwhile to me, but many users might find

this price unacceptable. My FORTRAN programs are small and I don't need a lot of memory. Your readers using monolithic operating systems and spreadsheet programs might be very unhappy with the loss of EMS memory, though.

[Ron is going to write an article for probably the March issue of H-SCOOP on the Sota 386i accelerator. I thought you might want to know in advance, so included Ron's message to me.]

Msg#: 993 \*MSG TO SYSOP\*  
12-31-89 14:08:47 (Read 3 Times)  
From: RONALD PANNATONI  
To: SYSOP (Rcvd)  
Subj: SOTA 386SI  
Henry:

The question of expanding the cache on the 386si board from 16Kb to 64Kb has come up several times on the SOTA BBS. The usual reply from SOTA to these inquiries is not to bother, the added cache won't really increase the performance. (One guy asked if the upgrade really works! No reply to this!) An article in the March issue of "BYTE" about cache memory seems to support SOTA, though. It reports a cache hit rate for 16Kb of 81%, whereas the hit rate for 64Kb increases just to 88%.

Nevertheless, when I was studying the user manuals for the cache boards sold by MicroWay, the FastCache using 8Kb of cache, and the SuperCache using 32Kb of cache, there appeared to be a substantial percentage of performance gained from the cache increase, about 50%. The MicroWay statistics were based on number-crunching applications like mine rather than data base applications probably more typical of the "BYTE" readership.

When I called the SOTA technical people about obtaining the cache update, I was told they don't sell it. The update consists of replacing 3 SRAM's on the 386si board. The manual explains which ones to pull out and what to put in their place: two 32 by 8 -100ns and one 32 by 8 -55ns SRAM's. One message on the SOTA BBS indicates that Sony is a possible source for these. The message reads as follows.

"Sony makes a 32Kb\* 55ns SRAM in both 600 mil and 300 mil packages.

The part numbers are: 600 mil: CXK58258P/SP-55; 300 mil: CXK58258SP/SP-55

As for obtaining them: well.... our local Sony rep found one for me. I don't know if they are normally stocked anywhere yet for ordinary folks to obtain....

Msg#: 1047 \*MSG TO SYSOP\*  
01-22-90 22:56:51 (Read 2 Times)  
From: RONALD PANNATONI  
To: SYSOP (Rcvd)  
Subj: SOTA 386SI  
Henry:

Last week I called Hamilton-Avnet to inquire about SRAM's. They returned my call today. They sell one kind of 32k by 8 55 ns SRAM. It comes in the 600 mil package. It is made by Integrated Device Technology (IDT), part number 71256S-55P. They cost \$68.75 apiece! Wow! If this is the sort of pricing you have encountered, forget it. SOTA told me that the cache is disabled when you use the Memory/16i board with the 386si accelerator. I can understand why they don't recommend the cache upgrade. All that money would be thrown away when the memory expansion board is added.

Msg#: 992 \*MAIL\*  
12-31-89 13:31:37  
From: BRIAN HANSEN  
To: HENRY FALE (Rcvd)  
Subj: REPLY TO MSG# 990 (ORDER)

OK Sounds good to me. I get a charge out of the HUG Discount List in the Dec. REMARK. They are listing things like the TM-158 I tried a few years ago and it was OUT of PRINT and they subbed. a TM-159. Brian

[Boy I don't know how many times I've heard that story]

Msg#: 994 \*MAIL\*

01-01-90 18:29:16

From: HENRY FALE

To: BRIAN HANSEN (Rcvd)

Subj: REPLY TO MSG# 992 (ORDER)

Very interesting. I've already seen Zenith items "no longer available" that suddenly "appear" someplace. In fact, the Z217 Z100 hard disk controllers and the MS-DOS 3.1 for the Z100, both of which we recently purchased plenty of, were both previously no longer available!

Msg#: 999 \*MAIL\*

01-05-90 03:37:26

From: JOE PANNON

To: HENRY FALE (Rcvd)

Subj: PLUS HARDCARD40 FAILURES

I have just found out something that might be of interest to other owners of the PLUS HardCard40 hard disk card. This model of the HardCard came out (I think) in August '87 and despite of the hefty list price of over \$1,000, I bought one for my H/Z '161 "luggable" PC because my old HardCard20 was already full with files. It seemed to me at the time that the rugged, fast HardCards were God-sent for portables. The quality of these cards was also considered very high.

Well, my HardCard40 started misbehaving lately, giving me some strange "1701(B) Controller Unit #0 Failure" messages at various times, then everything seems to be OK after a reboot. Even more often, I get some strange grinding sounds from the drive, followed by the dreaded "Abort, Ignore, Retry, Fail?" prompt. Usually it then works on retry.

When I called PLUS Corporation's Product Support number, I was given the bad news: early production units are failing all over due to some combination of mechanical and firmware problems and it cannot be fixed. Since they are also beyond the 1 year warranty period, we have no recourse. The only thing the company is willing to do, that they offer a replacement HardCard40 for a drastically reduced price of \$375. This is significantly better than the lowest mail order price I've seen, around \$600. This does not sound too bad, but having shelled out already almost a \$1,000 just over two years ago, I think the company could do better, even though the warranty period is over. After all, most expensive products are not expected to go completely bad so soon after the warranty period! I wonder how many other people of the H-SCOOP readership are experiencing the same problem. I hope you publish this in the next issue, Hank. Perhaps if enough people make a noise about this, the company might give us a better deal; after all, up until now, they have been bragging about their longest MTBF (Mean Time Between Failures) figures in the hard disk industry!

Msg#: 1000 \*MAIL\*

01-05-90 10:04:04

From: HENRY FALE

To: JOE PANNON (Rcvd)

Subj: REPLY TO MSG# 999 (PLUS HARDCARD40 FAILURES)  
Joe, Thank you for sharing this and I will publish it. It seems to me that if they knew of a problem, they should be covering it for their name's sake. Bad publicity for a company not to stand behind their problems.

Msg#: 1024 \*MAIL\*

01-13-90 21:21:30

From: JOE PANNON

To: HENRY FALE (Rcvd)

Subj: REPLY TO MSG# 1000 (PLUS HARDCARD40 FAILURES)  
I called PLUS since then again, and this time I got another support guy on the phone. This guy must have been more cautious because he did not say anything this being a general problem, but I think it was evident from the way he reacted when I described the problem:

1701(B) -- Controller #0 Error

+++ DISK ERROR: Drive not ready! +++

Without asking any other questions he offered to replace the card this time with a "remanufactured" one for only \$250! It would come with a 2 year warranty. He also suggested repeated reformatting (DOS FORMAT) of the drive in order to extend its remaining usefulness.

I also talked to an attorney who said that PLUS may still be liable for the problem even though the original warranty expired. They could be found culpable if they knew about this problem yet they failed to notify their customers in time. It looks to me that they knew about it, so they could be possibly sued for consequential damages if such damages could have been prevented had the customers been notified in time. This lawyer also mentioned that such massive failures could be grounds for a class action law suit!

Well, since I'd rather keep a safe distance from lawyers as long as I can, I'd like to see if PLUS might further reduce the price of a replacement drive even further as time goes by. I just might give a call to the Customer Service Manager and see if I could convince him of that.

## QUIKDATA BITS

Memory price changes are as follows:

M256-15	\$2.39
M256-12	\$2.50
M256-10	\$2.95
M256-08	\$3.50

Here we go again. Every year Zenith comes up with a new scheme to qualify dealers. Each year they drop more and more of their dealers. They are now going to drop hundreds keeping only 700 "medallion" dealers. These are their best money makers. We'll know in March if Quikdata will again qualify. So far we've come through every one, but this one may be different. Zenith like many other vendors are not liking mail order companies. Because we deal primarily in mail order and do not have a store front and outside sales reps, chances are very good that we may not be a Zenith dealer after March of this year. Whatever happens, happens. I'm not going to lose any sleep over the matter!

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MARCH issue deadline--February 15th

QUIKDATA is the parent company of H-SCOOP.

### H-SCOOP/QUIKDATA

2618 Penn Cir.  
Sheboygan, WI 53081-4250  
(414) 452-4172

(414) 452-4344 Fax line

(414) 452-4345 Bulletin Board: 300/1200/2400/9600 (Hayes) auto-baud recognition. Character width of 10 which includes start bit, 8 data bits (7 for ASCII character + 1 parity), and one stop bit. The parity can be omitted and then transmission of graphics and binary data is possible. 8 data bits allows secure error-checking data transfer methods such as XMODEM and YMODEM to be used.

Subscription Rates--\$24/Year (\$28 Canada, \$36 overseas Airmail)--current issues. Back issues no longer available: 1-48, 52. Back issue sets available starting with issue #55 (October '84). Back issues prior to Jan '87 available at \$1 each, 1987 back issues \$2 each. No Purchase Orders accepted for subscriptions, and No Invoicing!!

**SPECIAL BACK ISSUE DEAL.** Purchase the current year at the regular price of \$24 for the 12 issue year starting Jan '90 (issue #118 - subscription will expire with Dec '90) and receive all available back issues for an additional \$20 (USA prices).

**PHONE HOURS:** M-Thu 9AM to 5PM. Friday 9AM to 3PM. NO COLLECT CALLS.